

REMARKS/ARGUMENTS

Claims 1, 3-5, and 7-21 are pending in the present application and stand rejected.

Claim 21 is objected to based upon minor informalities.

Claims 1, 3-4, 9-15, and 17-21 are rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent 6,779,119 to Moshfegui et al. (hereinafter "Moshfegui").

Claim 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent Application Publication 2003/0018849 to Takaichi in view of United States Patent 5,687,347 to Omura et al. (hereinafter "Omura") and further in view of United States Patent 5,257,370 to Letwin. It is noted that the body of the claim rejection actually refers to Moshfegui and Letwin, and makes no reference to either Takaichi or Omura. Therefore, in the following, the rejection is assumed to be based upon Moshfegui and Letwin.

Claims 7-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Moshfegui in view of Letwin and further in view of United States Patent Application Publication to 2003/0037202 to Kedem et al. (hereinafter "Kedem"). The Office Action refers to Takaichi and Omura as applied to claim 4. In fact, claim 4 is rejected as being anticipated by Moshfegui. The rejection is therefore assumed to be based upon Moshfegui and Kedem.

Claim 16 is rejected as being unpatentable over Moshfegui in view of Omura.

Claims 1, 4, 7, 8, 10, 13, 16, 17, 20, and 21 are amended. New claims 22-23 are added. Support for the new and amended claims can be found throughout the application and, among other places, support can be found at pages 23-31 and with reference to Figs. 2, 4, 7, 9, and 10. No new matter has been added.

Objections to the Specification

The Examiner objected to claim 21 for inclusion of "the control unit (102)" and stated that the term should be corrected to read "the control unit." Claim 21 is amended as required by the Examiner.

Rejections under Section 102

In order to anticipate a claim, a single prior art reference must describe each and every element as set forth in the claim. Applicants respectfully traverse the rejections under 35 U.S.C. §102(b) because Moshfegui does not disclose all elements as claimed with their respective features and limitations.

A. Claim 1

Claim 1 recites a storage device comprising a control unit. The control unit "records access history information that identifies a data access pattern and a history of data readout activity having been performed by the disk device for a *plurality of computers classified into a plurality of groups*." The control unit reads out data from the storage device "to specify computers in a first group of computers based on predetermined information including both a first information for specifying the access history and a second information including the group identifier for the first group of computers." The control unit further "pre-reads data to be used by said first group of computers from said disk device to said cache memory based on one or more commands containing information for specifying said history and information for specifying the first group of computers, the one or more commands being received from a management computer communicating with the storage device through a network." Applicants respectfully submit that Moshfegui does not disclose a control unit with at least these features.

Moshfegui discusses reducing actual and perceived response times in systems characterized by data access latency. See, Abstract. This is accomplished by adding features to a client computer. See, Fig. 1. Alternatively, the added features can be divided between a client computer and a server computer. See, Fig. 2.

Moshfegui does not disclose forming groups of client computers and separately administering the groups. Specifically, Moshfegui does not disclose that data is read out from a storage device to specify computers in a first group. Moshfegui does mention a usage log, but does not disclose that data is read out from the usage log to specify a first group of computers. Similarly, there is no disclosure that specifying a first group of computers is based on the claimed first and second information. In other words, Moshfegui does not disclose that a group

of computers is specified based on predetermined information that includes an access history and that also includes a group identifier.

In addition, there is no disclosure that a control unit pre-reads data to be used by a group of computers based upon commands received from a management computer. In this regard, Moshfegui fails to disclose that commands from a management computer include both information for specifying a first group of computers and information for specifying the access history as recited above. It follows from these deficiencies that Moshfegui also omits "the management computer being arranged to include a display screen on which information on the plurality of groups and the plurality of computers classified into said plurality of groups is displayed." Accordingly, Applicants submit that Moshfegui fails to disclose each and every claim limitation and respectfully request reconsideration and allowance.

B. Claims 10, 13, 17, 20, 21

Claims 10, 13, 17, 20, 21 are rejected over Moshfegui using a similar rationale as that applied to claim 1. Applicants note that each of these independent claims includes features and limitations similar to those discussed in connection with claim 1. Specifically, claims 20-21 are believed allowable over Moshfegui for at least the reasons presented above. Representative limitations from claims 10, 13, and 17 not found in Moshfegui are identified below.

As to claims 10 and 13, Moshfegui does not disclose at least a management computer transmitting first and second commands as claimed, or a storage device that is responsive to said first and second commands. For example, as recited in claim 10, Moshfegui does not disclose a "management computer for transmitting to said storage device a first command containing information for specifying computers in a first group of computers and information for specifying access history information that identifies a data access pattern and a history of data readout activity for said specified computers in said first group and said storage device...said management computer for transmitting to said storage device a second command containing information for specifying any one of said computers in said first group of computers and information for specifying said access history information." Claim 13 recites similar

limitations directed to a management computer and a storage device that are also not found in Moshfegui.

As to claim 17, Moshfegui does not disclose a control unit configured to obtain, store, and pre-read data as claimed. Among other things, Moshfegui fails to disclose that the control unit is configured to "obtain storage-device-access history information that identifies an access pattern and a history of data readout activity for each of said each of a first group of computers in said plurality of computers based upon information from a management computer; store information in tabular form which identifies each of said computers in said first group with their its respective storage-device-access history information; and pre-read data from said disk drive units for at least one of said computers of said first group based on its respective storage-device-access history information."

C. Claims 3, 4, 9, 11, 12, 14, 15, 18

Claim 3, 4, 9, and 18 depend from claim 1. Claims 11-12 depend from claim 10. Claims 14-15 depend from claim 13. Each dependent claim incorporates all of the limitations of its respective base claim and each is therefore believed allowable over Moshfegui for at least the reason that it depends from an allowable base claim.

Rejections under Section 103

A. Claims 5, 7, 8, 16

Claims 5, 7, 8, 16 are rejected as unpatentable over Moshfegui in view of secondary references including Omura, Letwin, and Kadem. Applicants submit that the cited references do not supply the limitations missing in Moshfegui as previously discussed. Therefore, it is respectfully submitted that the proposed reference combinations cannot support a prima facie case of obviousness. Some additional observations concerning the secondary references are provided below.

As to claim 5, the Office Action cites Letwin at col. 5, lines 32-33 for the limitation "wherein when a command of stopping record of said history is received, the record of said history is stopped." However, in the cited passage, Letwin simply discusses suspending I/O requests to a disc while a read operation is being performed. Applicants respectfully submit that

suspending and resuming disk I/O is different than stopping the recording of history data and that, in any event, Letwin does not teach or suggest *a command to stop recording history data* as claimed.

As to claim 16, the Office Action cites Omura at col. 4, lines 31-39 for the limitation "wherein said management computer classifies said plurality of computers into said plurality of groups when registering said computers." However, Applicants note that Omura merely discusses grouping commands according to their destination in a data request device. Omura does not disclose classifying computers into groups ("said plurality of groups") or the above limitations relating to group-based management. Therefore, Applicants respectfully submit that Moshfegui in view of Omura does not disclose render claim 16 obvious.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 858-350-6100.

Respectfully submitted,



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